

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 10/580,859

Confirmation No. : 8826

First Named

Inventor : Walter VIEGNER, Jr.

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Examiner : Stephanie M. JENNINGS

Docket No. : 102475.57672US

Customer No. : 23911

Title : Method for Producing a Coupling on a Pipe and Device for Producing Said Coupling

REPLY AFTER FINAL REJECTION

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Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

This Reply is respectfully submitted in response to the Office Action dated June 12, 2009. Reconsideration of the application is requested.

Independent claim 9 is rejected under 35 U.S.C. § 103(a), along with claims 10-15, which depend on claim 9, as unpatentable over newly cited U.S. Patent Application Publication 2004/0144152 to Wu. Reconsideration is requested.

The Wu publication discloses a method for expanding and forging a tube with a thin tube body and a thicker end. This configuration is created by drawing of the tube in order to reduce the wall thickness at one portion of the tube during the second step represented in Figure 3. Figures 3-8 of the Wu publication illustrate the process and equipment for a multi-stage method by which an aluminum alloy tube is forged. As described in paragraph 22, for

example, in this method, two dies 4, 6 and two mandrels 5, 7 perform the two-step shape-forming of the aluminum alloy tube end section. The open end section of the tube is not limited by the mandrel or any other part in the axial direction during processing. Consequently, the material can undergo uncontrolled expansion in the axial direction. After this forging process, the aluminum material at the end of tube can have an irregular length, without a neat end edge, because displacement of that material is not limited by the mandrel 5 in axial direction during forging.

The invention defined by claims 9-15 in the present application, by contrast, is a method for forging a pipe end while limiting the inner and outer diameter of the pipe end as well as shaping the edge of the pipe end by means of an upsetting device 4. Claim 9, in particular, specifies the expanding act or operation defined thereby as performed so as to provide an expanded region of the pipe end with an enlarged wall thickness no earlier than introduction of the expansion tool into the pipe end by a force applied axially to the pipe end while limiting an outer diameter of the pipe end to be processed by way of an upsetting device and at least one shaping shoe at least partially surrounding the pipe end. Nothing noted by the Examiner suggests modifying the Wu forging method in such a way as to meet these limitations.

The upsetting device is pressed with its shoulder 10 on the pipe end in order to upset the pipe end to increase the wall thickness. As a result the pipe end is limited in the axial direction and cannot expand axially, and the inner and outer diameter, the wall thickness, and the axial length of the pipe end are all well defined. By utilizing the upsetting device as specified in claim 9,

irregular end edges and unexpected length variations can be avoided. There is no discussion of an upsetting device operating as specified in claim 9 in either paragraph 0022 or elsewhere in the Wu disclosure.

It is respectfully submitted that the obviousness rejection of claim 9 should be withdrawn for reasons discussed. The obviousness rejection of claims 10-15, which depend on claim 9, should be withdrawn as well.

Independent claim 16 is rejected under 35 U.S.C. § 103(a), along with claims 17-20, which depend on claim 16, as unpatentable over newly cited U.S. Patent Application Publication 2003/01227774 to Stephenson et al. Reconsideration of this rejection is also requested.

The Stephenson et al. publication discloses a tubing expansion device that is movable through tubing and that contacts only an inner wall of the tubing as described in paragraphs 0010-0011. The two embodiments described in paragraphs 0042 and 0043 of the Stephenson et al. publication can only enlarge the inner diameter of the tubing. The "cylindrical part (22)" and the "shaping shoe (105)" mentioned in paragraph 18 of the Office Action are both part of the expander to be inserted inside the tubing. The Stephenson et al. publication, therefore, lacks both a shaping shoe adapted to determine a subsequent outer diameter of the pipe end, and a substantially cylindrically structured upsetting device having a smallest inner diameter and a substantially radially extending annular shoulder which is pressable axially against an end face of the pipe end to produce an expanded pipe end region as claim 16 specifies.

The tubing expansion device of the Stephenson et al. arrangement is useable only to expand a tubing inner diameter, without permitting the wall

thickness of tube to be enlarged. This is basic feature of the invention, results from the method specified in claim 9, and is provided by the apparatus specified in claim 16. The Examiner's attention is additionally directed to background information relating to the Weatherford expansion system available at (<http://www.weatherford.com/weatherford/groups/public/documents/general/wft018928.pdf>), which contains an illustration showing more clearly the use of an expansion device.

It is respectfully submitted that the obviousness rejection of claim 16 should be withdrawn for reasons discussed. The obviousness rejection of claims 17-20, which depend on claim 16, should be withdrawn as well.

For reasons discussed, it is respectfully submitted that all of the claims in this application are patentable as they now appear, and the application as a whole is presently in allowable condition. If there are any questions regarding this Reply or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an extension of time sufficient to effect a timely response. Please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket # 102475.57672US).

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Respectfully submitted,

Richard R. Diefendorf
Registration No. 32,390

CROWELL & MORING LLP
Intellectual Property Group
P.O. Box 14300
Washington, DC 20044-4300
Telephone No.: (202) 624-2500
Facsimile No.: (202) 628-8844
RRD:rd